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PROCEEDINGS
OF
THE ROYAL IRISH ACADEMY.

1839.

No. 18.

June 10.

SIR WM. R. HAMILTON, A. M., President, in the Chair.

The following gentlemen were admitted Members of the Academy: William R. Wilde, Esq., Alexander Parker, Esq., and Jonathan Osborne, M. D.

RESOLVED,—That the Academy do allow a ballot to take place at the next Meeting, for W. Longfield, Esq., his name having been duly proposed within one month before that night, but too late for the ballot of this evening.

Sir Henry Marsh read a paper “on Phosphorescence or luminous Appearances;” the term phosphorescence being employed, without implying that the presence of phosphorus is necessary to the production of these phenomena.

The chief object of this communication was to bring forward some interesting facts relative to the evolution of light, in the living human subject; facts of this nature not having heretofore been publicly noticed. Indeed so little has this subject been scientifically investigated, that all such appearances have been referred to supernatural agency, the ultimate and easy refuge of ignorance and superstition.

To render the discussion more complete and intelligible, Sir H. Marsh introduced the general subject of luminous

appearances, as they are observed in the different kingdoms of nature.

Commencing with unorganized bodies, he particularized the sun and fixed stars, which are *always* luminous, but which derive this property from a source unknown and almost beyond conjecture. He then proceeded to the consideration of those bodies, placed under our more immediate cognizance, which are only *occasionally* luminous.

The aurora borealis is a beautiful instance of this property, clearly ascertained to be of electrical origin, by the fact that these lights, according to the observations of Arago and others, disturb the magnetic horizontal needle. That shooting stars spring from the same source is now universally conceded.

Some inorganic bodies are rendered luminous, under various circumstances; the diamond, arragonite, strontia, marble, calcareous spar, lime, and many other substances possess this property.

A species of fluor spar, found in the granite rocks of Siberia, shines in the dark with a remarkable phosphoric light, which increases when the temperature is raised: by immersion in boiling mercury it emits such a light that a book may be read by it at a distance of five inches.

Many bodies may be rendered luminous by friction, by percussion, or by concussion. Similar effects result from chemical action and reaction, as in the ordinary process of combustion. Many salts also, held in solution, exhibit luminous appearances at the time when crystallization is going forward. And by the agency of electricity many bodies can be rendered luminous, as proved by transmitting a series of electric discharges through fragments of chalk, sugar, quartz, succinic acid. After a few remarks on the important part which electricity plays in the production of all these effects, he went on to notice those luminous phenomena so remarkably exhibited in *organized* substances, at the moment of

incipient decomposition. Decaying wood, under peculiar conditions of temperature and humidity, evolves light; and it is well known that accumulated masses of vegetable matter, when not sufficiently dried, undergo fermentation, and, if the process be not interrupted, evolve light and caloric, and are destroyed by combustion. In recently dead *animal* matter the phenomena of phosphorescence is most strikingly exhibited. Soon after death, fishes become exceedingly luminous. In burial grounds luminous appearances have often been seen, and fearful and awful are they to the eye of superstition. These corpse-lights, as they are called, are clearly traceable to the same source, and take place during the earlier stages of disintegration. A very curious, though not very pleasing appearance of the same kind, and arising from the same causes, has been observed by many in dissecting rooms. The *ignis fatuus* also is a phenomenon, which, like those already alluded to, is produced by electricity, the result of chemical action in decaying vegetable matter, when the temperature is in neither extreme, and humidity sufficient to lend its aid in producing the effect.

Sir H. Marsh then proceeded to the consideration of phosphorescence, as a function in living vegetables, and described the extraordinary and brilliant appearance of phosphorescent lichens in the coal mines near Dresden. He also stated that the flowers of several plants, in serene and warm summer evenings, disengage light.

It is now known with certainty that light is developed in living animals, a large proportion of which are inhabitants of the sea, and from their presence in the water arises the phosphorescence of the waves, especially in the track of sailing vessels. The author here enumerated and described many of the most remarkable marine species of phosphorescent animals, and stated that luminous appearances had also been observed in fresh water animalcula.

He remarked the analogy between luminous and electri-

cal fishes, and proposed the question, whether the vital property of emitting light was designed for the protection of these animals, or is it connected with the function of generation? The property of evolving light is not confined to aquatic animals; some of the terrestrial mollusca, as the *limax noctilucus*, produce a phosphorescent secretion capable of emitting a light of considerable brilliancy.

Many insects are luminous, as the several species of *elater*, the *lampyris noctiluca* and *splendidula*, the *pausus sphærocerus*, *scarabæus phosphoreus*, and the *scolopendra electrica*.

The *fulgora lanternaria* is one of the most remarkable of the class, and during the night diffuses so strong a light, that a few, it is said, being fastened together, are employed to enlighten the path of the traveller, and to guide his foot steps during the darkness of night. Having made a few remarks on the *tapetum lucidum* existing in the eyes of some animals, the author proceeded to detail the chief object of his communication, namely, facts relative to the development of light in the living human subject. The first case that he narrated was that of a young lady in the last stage of pulmonary consumption. About ten days previously to her death, there was observed a very extraordinary light which seemed darting about the face, and illuminating all around her head, flashing like an *aurora borealis*: it was at night, and after a day of extreme nervous agitation produced by debility and the dread of suffocation. This luminous appearance commenced suddenly, and was at first mistaken, by her attendants, for the light of a candle, which was accordingly removed lest it should disturb the slumbers of the patient. The peculiar light, however, continued flitting over her countenance for more than an hour; its hue was not that of candle light, it was more silvery, like the reflection of moonlight on water. Three nights afterwards it re-appeared, and was observed by additional members of

her family, at a time when there was no candle in the room, no moon, nor in fact any visible means of producing light. The evening before the death of this young lady, the light was again seen, but it was less brilliant, and lasted only about twenty minutes.

Phenomena of the same kind were observed around the person of a man, who died of a lingering disease, in a remote part of the south west of Ireland : and a similar case is said to have been witnessed in Hull.

Sir H. Marsh then related the case of a woman, in the old Meath Hospital, who laboured under an enormous cancerous ulcer of the breast ; from the surface and edges of the sore a quantity of fluid was constantly poured out, which became so luminous at night, as to be distinctly visible at a distance of more than twenty feet from her bed.

He suggested a comparison between the condition of a diseased part emitting light, and that state of the whole frame which characterizes the disease termed " spontaneous combustion ;" and mentioned that in one case of spontaneous combustion, a lambent flame was distinctly seen to issue from the burning body. A strong analogy doubtless exists between this state of the living body, and the early state of decomposition, during which light is emitted.

He then detailed an experiment first performed by Magendie. Phosphorated oil was injected into the crural vein of a dog, when immediately its expirations became luminous, and continued so until the death of the animal.

The author concluded by remarking that the results of this experiment, and the ascertained presence of phosphorus in vegetables and animals, would lead to the opinion, that in some, at least, of the instances of luminous appearances referred to, phosphorus formed an element in the production of the effect.

W. O'Brien Esq. A.M., read a paper containing an Inquiry into the original Language of the Phœnicians.

He observes that the explanation given by Bochart and others of the Punic scene in Plautus, by means of the Hebrew, is much more natural than that derived from the Irish by Vallancey, who palmed some words upon that language which do not belong to it, and some from the modern Irish, which are English. He thinks that, even if the original language of the Phœnicians was not the Hebrew, they must generally have spoken that tongue at the time of the colonisation of Carthage, since the language of the multitude must always predominate over that of the few ; and in the time of Solomon, the Israelites "could not be counted or numbered for multitude." Hence he infers that the ancient language must have been circumscribed within the very narrow limits of the few walled cities, and that the greater part of the adventurers after the first colonisation, must have spoken the Hebrew language only. Upon these grounds he concludes, that the Carthaginian language is no more an indication of the original language of the Phœnicians, than the English is of that of the ancient Britons or Irish. He considers, however, that we are not left without another clue to this language, besides that of the Carthaginians : since, although languages are obliterated, traces of them remain in the names of persons, places, rivers, mountains, &c. Thus, British names survive in England, in spite of the several conquests by Belgæ, Romans, Saxons, and Normans : and although these names are often much corrupted, a philologist of skill and discretion will be able frequently to see through the veil, and discover the original word. He shows that this view exactly corresponds to that taken by the celebrated Leibnitz, in his work on the origin of nations.

He then proceeds to investigate the roots and meaning of nearly forty of the names of places and tribes in Palestine. He professes to admit no derivation, which is barely conjec-

tural or plausible. One method of confirmation he uses, is, to trace the assigned roots through several languages and regions. Thus he traces one of them—*iodh-ar*, *ith-ar*—through vitrum,—*καρττερος*,—margarita—Eridanus—iohar, (borrowed he says by the Arabians from the Phoenicians)—Farsidh (Persia), and the names of some of the islands in the Persian Gulf. He traces *idh-on*, *iodh-on*, the roots of Sidon, through Chalcedon, Carchedon, Caledonia, and the Germanic aidstein, whereby he exhibits the meaning of those names also. He traces the roots of Solyma through the region inhabited by the Solymi of Homer, the Sulmo of Italy, and the Saluvii of Gaul, and shows from the accounts concerning those places, that the roots are equally applicable to them. The roots of the Hebrew borrowed word *glinnim* he traces through Germany, ancient Britain, Campania, and Liguria. Another mode of confirmation he uses is the quotation of, or reference to, various ancient and modern writers, in proof of the applicability of the terms.

He does not infer from this similarity of language, that the Irish are descended from a colony of Phoenicians, led—not from Tyre or Sidon, or any part of Syria, but—from the shores of the Red Sea, as Irish histories tell us; the greater part of which histories he imagines to be a tissue of fables, the rather, as they are at variance with the only authentic document relating to ancient Ireland, namely, the geography of Ptolemy. The conclusion he comes to is, that they had a common origin—that there was an ancient language diffused over almost the whole of Europe, and a good part of Asia; a sort of Pelasgic, which is the chief root of the Greek and Latin, and of most of the modern European languages; and that this ancient language is preserved in greater purity in Ireland than in any other country, on account of its insulated position. He shows that Leibnitz, a man of great sagacity and philological knowledge, made an observation not very dissimilar to this. “*Illud autem notatu dignissimum, per*

magnum continentis nostri partem, linguæ cujusdam antiquæ, latissime fusæ, vestigia in linguis hodiernis superesse; cum multa sint vocabula quæ inde ab Oceano Britannico ad usque Japonicum protenduntur.—Itaque lingua Hibernica refert nobis antiquiores Britannos, et adhuc antiquiores Germanos et Gallos. Proinde ex Hibernicâ antiquissimi Celtæ in lucem revocabuntur.”—*De orig. Gentium*. Also, that a great modern philologist, Adelung, has arrived at similar results from collating the Parsee, Sanscrit, Greek, Latin, Sclavonian, and Germanic languages; viz., “That men of the same race peopled all these countries, previously to any historical record.”

He holds, however, that colonies from Carthage did settle in Gaul and Britain, though not in Ireland; that they spoke the Lybian language only, not the Hebrew; and that this language is still in being, though much altered from its original, in the languages of Wales, Cornwall, and Bretagne.

It ought to be observed that he claims the settlement, incidentally, of some points of great interest to, and much contested by, antiquarians. 1. The meaning and application of the word Caledonia. 2. Of the Greek and Roman name for Carthage. 3. The roots and meaning of the Welch names, Menay and Meneu, words which baffled Lhuyd and Rowland. 4. The ancient names and uses of Cromlechs. He holds that their original purpose was that of hearths or bloomeries for the smelting of metals. That Hedar (of which he assigns the roots) in Danish Hothr, now Hoath, is the same word as *erath*, *arath*, hearth,—differing from it only in the transposition of the roots. That *chabar* is but a different dialect of the same word, whence the Cabiri, Guebres, derived their name and ceremonies. Also, that the hearth-stone was deified by the Germans, under the name of *hertha*, not terra mater, as Tacitus says, misinformed by persons who confounded the Germanic *erde* and *herde*, *erth* and *herth*.

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June 24, 1839.

SIR WM. R. HAMILTON, A. M., President, in the Chair.

His Excellency the Lord Lieutenant was present at the meeting.

William Longfield, Esq., was elected a member of the Academy.